

**Translation**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>PH-2195-PCT</b>	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. <b>PCT/JP2004/008797</b>	International filing date (day/month/year) <b>16.06.2004</b>	Priority date (day/month/year) <b>26.06.2003</b>
International Patent Classification (IPC) or national classification and IPC		
Applicant <b>MITSUKAN GROUP CORPORATION</b>		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. ☐ (sent to the applicant and to the International Bureau) a total of \_\_\_\_\_ sheets, as follows:

☐ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. ☒ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s))

**1 flexible disk**, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the report
<input type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI	Certain documents cited
<input type="checkbox"/>	Box No. VII	Certain defects in the international application
<input type="checkbox"/>	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/008797

Box No. I	Basis of the report
1.	<p>With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.</p> <p><input type="checkbox"/> This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:</p> <p><input type="checkbox"/> international search (Rule 12.3 and 23.1(b))</p> <p><input type="checkbox"/> publication of the international application (Rule 12.4)</p> <p><input type="checkbox"/> international preliminary examination (Rule 55.2 and/or 55.3)</p> <p>2. With regard to the elements of the international application, this report is based on <i>(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):</i></p> <p><input checked="" type="checkbox"/> the international application as originally filed/furnished</p> <p><input type="checkbox"/> the description:</p> <p>pages _____ as originally filed/furnished</p> <p>pages* _____ received by this Authority on _____</p> <p>pages* _____ received by this Authority on _____</p> <p><input type="checkbox"/> the claims:</p> <p>nos. _____ as originally filed/furnished</p> <p>nos.* _____ as amended (together with any statement) under Article 19</p> <p>nos.* _____ received by this Authority on _____</p> <p>nos.* _____ received by this Authority on _____</p> <p><input type="checkbox"/> the drawings:</p> <p>sheets _____ as originally filed/furnished</p> <p>sheets* _____ received by this Authority on _____</p> <p>sheets* _____ received by this Authority on _____</p> <p><input checked="" type="checkbox"/> a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.</p>
3.	<p><input type="checkbox"/> The amendments have resulted in the cancellation of:</p> <p><input type="checkbox"/> the description, pages _____</p> <p><input type="checkbox"/> the claims, nos. _____</p> <p><input type="checkbox"/> the drawings, sheets/figs _____</p> <p><input type="checkbox"/> the sequence listing (specify): _____</p> <p><input type="checkbox"/> any table(s) related to sequence listing (specify): _____</p>
4.	<p><input type="checkbox"/> This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).</p> <p><input type="checkbox"/> the description, pages _____</p> <p><input type="checkbox"/> the claims, nos. _____</p> <p><input type="checkbox"/> the drawings, sheets/figs _____</p> <p><input type="checkbox"/> the sequence listing (specify): _____</p> <p><input type="checkbox"/> any table(s) related to sequence listing (specify): _____</p>

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/008797

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims 1-8	YES
	Claims 9	NO
Inventive step (IS)	Claims 1-8	YES
	Claims 9	NO
Industrial applicability (IA)	Claims 1-9	YES
	Claims	NO

## 2. Citations and explanations (Rule 70.7)

Document 1: JP 2-2364 A (Nakano Vinegar Co., Ltd.), 08  
January 1990, example 3 and fig. 2

Document 2: JP 53-96395 A (Nakano Vinegar Co., Ltd.), 23  
August 1978, claims and examples

Document 3: JP 61-205475 A (Nakano Vinegar Co., Ltd.), 11  
September 1986, claims and examples

Document 4: JP 2-53477 A (Nakano Vinegar Co., Ltd.), 22  
February 1990, claims and examples

Document 5: Int. J. Syst. Evol. Microbiol., 2000, Vol.  
50, No. 6, pages 2013 to 2020

Document 6: J. Bacteriol., 1990, Vol. 172, No. 4, pages  
2096 to 2104

Document 7: JP 3-219878 A (Nakano Vinegar Co., Ltd.), 27  
September 1991, claims and examples

Document 8: JP 6-90733 A (Gun Ei Chemical Industry Co.,  
Ltd.), 05 April 1994, column 4, lines 38 to  
44

Documents 1 to 4 all disclose table vinegars that  
include high concentrations of acetic acid.

Document 5 indicates that species of  
*Gluconacetobacter entanii* bacteria were isolated from  
submerged high-acid industrial table vinegar

Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

fermentations.

Document 6 presents the genes that are responsible for the acetic acid resistance of species of *Acetobacter aceti* bacteria, and indicates that genes were screened using the reversion of the acetic acid-sensitive mutant strains to their original acetic acid resistance as a screening index in order to acquire the genes in question.

Document 7 discloses the gene that imparts acetic acid resistance to microorganisms from the genus *Acetobacter*, and indicates that it is possible to increase the acetic acid resistance of an acetic acid bacterium by introducing said gene into said acetic acid bacterium.

Document 8 indicates that acetic acid bacteria from the genera *Acetobacter* and *Gluconacetobacter* produce table vinegar by means of alcoholic fermentation.

The inventions set forth in claims 1 to 8 are novel and involve an inventive step in relation to the inventions that are disclosed in documents 1 to 8.

That is to say, the fact that species of *Gluconacetobacter entanii* bacteria include a protein with the amino acid sequence that is represented by SEQ ID NO: 2 and a DNA with a base sequence that comprises bases no. 180 to 1376 from the base sequence that is represented by SEQ ID NO: 1 is not disclosed or suggested in documents 1 to 8, and the feature in question cannot be considered to have been obvious to a person skilled in the art.

Furthermore, the abovementioned protein that exhibits a proliferation promoting function and the DNA that codes said protein, which are set forth in claims 1

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/008797

Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
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to 8 of the present application, are acquired by transforming the DNA library of acetic acid bacteria that normally require four days to proliferate in the presence of a 1% concentration of acetic acid, screening the bacteria after three days of proliferation using the formation of colonies as a screening index and then cloning the screened bacteria, and said screening method is not disclosed in any of the documents.

The invention set forth in claim 9 lacks novelty and does not involve an inventive step in the light of documents 1 to 4.

It is impossible to differentiate the table vinegar that is set forth in claim 9 and the table vinegars that are disclosed in documents 1 to 4.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/008797

## Supplemental Box Relating to Sequence Listing

## Continuation of Box No. I, item 2:

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this report was established on the basis of:
- a. type of material
- ☒ a sequence listing
- ☐ table(s) related to the sequence listing
- b. format of material
- ☐ in written format
- ☒ in computer readable form
- c. time of filing/furnishing
- ☐ contained in the international application as filed
- ☒ filed together with the international application in computer readable form
- ☐ furnished subsequently to this Authority for the purposes of search and/or examination
- ☐ received by this Authority as an amendment\* on \_\_\_\_\_
2. ☒ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

\* If item 4 in Box No. I applies, the listing and/or table(s) related thereto, which form part of the basis of the report, may be marked "superseded."